Nitric oxide

Other names:	Amidogen, oxo-
	NITROGEN OXIDE
	NO
	Nitrogen monoxide
	Nitrogen oxide (NO)
	Nitrosyl radical
	UN 1660
	nitrogen monooxide
	oxoamidogen
Inchi:	InChI=1S/NO/c1-2
InchiKey:	MWUXSHHQAYIFBG-UHFFFAOYSA-N
Formula:	NO
SMILES:	[N]=O
Mol. weight [g/mol]:	30.01
CAS:	10102-43-9

Physical Properties

Property code	Value	Unit	Source
af	0.5880		KDB
affp	531.80	kJ/mol	NIST Webbook
affp	526.10 ± 1.30	kJ/mol	NIST Webbook
basg	505.30	kJ/mol	NIST Webbook
dm	0.20	debye	KDB
gf	86.75	kJ/mol	KDB
hf	90.43	kJ/mol	KDB
ie	9.25 ± 0.01	eV	NIST Webbook
ie	9.25 ± 0.02	eV	NIST Webbook
ie	9.26 ± 0.00	eV	NIST Webbook
ie	9.27 ± 0.01	eV	NIST Webbook
ie	9.26 ± 0.00	eV	NIST Webbook
ie	9.26	eV	NIST Webbook
ie	9.26	eV	NIST Webbook
ie	9.26 ± 0.00	eV	NIST Webbook
ie	9.23	eV	NIST Webbook
ie	9.20 ± 0.10	eV	NIST Webbook
ie	9.54	eV	NIST Webbook
ie	9.26	eV	NIST Webbook

ie	9.26 ± 0.00	eV	NIST Webbook
ie	9.27	eV	NIST Webbook
ie	9.26 ± 0.00	eV	NIST Webbook
ie	9.27	eV	NIST Webbook
ie	9.25 ± 0.02	eV	NIST Webbook
ie	9.25 ± 0.15	eV	NIST Webbook
ie	9.27	eV	NIST Webbook
ie	9.26 ± 0.00	eV	NIST Webbook
ie	9.27 ± 0.05	eV	NIST Webbook
ie	9.28 ± 0.03	eV	NIST Webbook
ie	9.27 ± 0.01	eV	NIST Webbook
ie	9.26 ± 0.00	eV	NIST Webbook
ie	9.26	eV	NIST Webbook
log10ws	4.42		Crippen Method
logp	-0.447		Crippen Method
mcvol	20.260	ml/mol	McGowan Method
pc	6480.00	kPa	KDB
pt	21.92	kPa	KDB
tb	121.41	K	KDB
tc	180.00	K	KDB
tf	109.50	K	KDB
tt	109.54	K	KDB
vc	0.058	m3/kmol	KDB
zc	0.2511270		KDB
zra	0.27		KDB

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
hvapt	13.80	kJ/mol	212.00	NIST Webbook
pvap	410.90	kPa	135.80	Phase Equilibrium of Three Binary Mixtures Containing NO and Components Present in Ambient Air
pvap	987.80	kPa	146.22	Phase Equilibrium of Three Binary Mixtures Containing NO and Components Present in Ambient Air

pvap	188.30	kPa	127.32	Phase Equilibrium of Three Binary Mixtures Containing NO and Components Present in Ambient Air
rhol	1280.00	kg/m3	121.00	KDB

Correlations

Information	Value
Property code	pvap
Equation	ln(Pvp) = A + B/(T + C)
Coeff. A	1.57218e+01
Coeff. B	-1.08919e+03
Coeff. C	-2.32800e+01
Temperature range (K), min.	109.50
Temperature range (K), max.	180.15

Sources

Crippen Method:	http://pubs.acs.org/doi/abs/10.1021/ci990307l
The Yaws Handbook of Vapor Pressure:	https://www.sciencedirect.com/book/9780128029992/the-yaws-handbook-of-vapor-pressure
Thermodynamic Study of binary an ternary systems containing CO2 + impurities in the context of CO2 transportation:	https://www.doi.org/10.1016/j.fluid.2014.08.031
Thermodynamic study of binary systems containing sulphur dioxide and nitric oxide: Measurements and modelling:	https://www.doi.org/10.1016/j.fluid.2017.12.036
Efficient and Reversible Nitric Oxide Absorption by Low-Viscosity, Azole-Derived Deep Eutectic Solvents:	https://www.doi.org/10.1021/acs.jced.9b00173
NIST Webbook:	http://webbook.nist.gov/cgi/cbook.cgi?ID=C10102439&Units=SI
Vapor Liquid Equilibrium (VLE) Data and Thermodynamic Modeling for Binary Systems Containing Perfluorobutane (R610) with Carbon Monoxide or Nitric Oxide at (293, 313, and 333) K:	https://www.doi.org/10.1021/je400822m
McGowan Method:	http://link.springer.com/article/10.1007/BF02311772
Crippen Method:	https://www.chemeo.com/doc/models/crippen_log10ws
Phase Equilibrium of Three Binary Mixtures Containing NO and Components Present in Ambient Air:	https://www.doi.org/10.1021/acs.jced.7b00782
KDB:	https://www.cheric.org/research/kdb/hcprop/showprop.php?cmpid=1928

Legend

af:	Acentric Factor

affp:	Proton affinity
basg:	Gas basicity
dm:	Dipole Moment
gf:	Standard Gibbs free energy of formation
hf:	Enthalpy of formation at standard conditions
hvapt:	Enthalpy of vaporization at a given temperature
ie:	Ionization energy
log10ws:	Log10 of Water solubility in mol/l
logp:	Octanol/Water partition coefficient
mcvol:	McGowan's characteristic volume
pc:	Critical Pressure
pt:	Triple Point Pressure
pvap:	Vapor pressure
rhol:	Liquid Density
tb:	Normal Boiling Point Temperature
tc:	Critical Temperature
tf:	Normal melting (fusion) point
tt:	Triple Point Temperature
vc:	Critical Volume
zc:	Critical Compressibility
zra:	Rackett Parameter